CLAIMS

The invention claimed is:

1. A capacitor construction comprising:

a capacitor electrode;

a high-k dielectric material over the capacitor electrode, the high-k dielectric material having a dielectric constant greater than that of aluminum oxide; and

an aluminum oxide between the capacitor electrode and the high-k dielectric material; provided that at least a portion of the capacitor electrode comprises a composition containing titanium and nitrogen.

2. The capacitor construction of claim 1 wherein the composition comprises titanium nitride.

3. The capacitor construction of claim 1 wherein the composition consists essentially of titanium nitride.

4. The capacitor construction of claim 1 wherein the composition comprises boron-doped titanium nitride.

5. The capacitor construction of claim 1 wherein the composition consists essentially of boron-doped titanium nitride.

6. The capacitor construction of claim 1 wherein the high-k dielectric material is selected from the group consisting of Ta_2O_5, HfO_x, ZrO_y, barium titanate, barium strontium titanate, strontium titanate, and lead zirconate titanate, where x and y are numbers greater than 0.

7. A capacitor construction, comprising:

a first capacitor electrode which includes a composition comprising titanium and nitrogen;

a layer comprising aluminum oxide over the first capacitor electrode;

a high-k dielectric material over the layer comprising aluminum oxide, the high-k dielectric material comprising a composition other than aluminum oxide; and

a second capacitor electrode over the high-k dielectric material.

8. The capacitor construction of claim 7 supported by a semiconductor substrate.

9. The capacitor construction of claim 8 wherein the semiconductor substrate includes a monocrystalline silicon wafer.

10. The capacitor construction of claim 7 wherein entirety of the first capacitor electrode is the composition comprising titanium and nitrogen.

11. The capacitor construction of claim 7 wherein the composition comprising titanium and nitrogen is physically against a conductive material, and wherein the conductive material and the composition comprising titanium and nitrogen are together incorporated into the first capacitor electrode.

12. The capacitor construction of claim 11 wherein the conductive material is conductively-doped silicon.

13. The capacitor construction of claim 11 wherein the conductive material is conductively-doped rugged silicon.

14. The capacitor construction of claim 7 wherein the high-k dielectric material is selected from the group consisting of Ta_2O_5, HfO_x, ZrO_y, barium titanate, barium strontium titanate, strontium titanate, and lead zirconate titanate, where x and y are numbers greater than 0.

15. The capacitor construction of claim 7 wherein the composition comprising titanium and nitrogen consists essentially of titanium nitride.

16. The capacitor construction of claim 7 wherein the composition comprising titanium and nitrogen consists of titanium nitride.

17. The capacitor construction of claim 7 wherein the composition comprising titanium and nitrogen consists essentially of boron-doped titanium nitride.

18. The capacitor construction of claim 7 wherein the composition comprising titanium and nitrogen consists of boron-doped titanium nitride.

19. A DRAM comprising the capacitor construction of claim 7.

20. An electronic system comprising the DRAM of claim 19.

21. A capacitor construction, comprising:

a first layer comprising titanium and nitrogen;

a second layer over the first layer, the second layer comprising aluminum oxide;

a high-k dielectric material over the second layer, the high-k dielectric material comprising a composition other than aluminum oxide;

a third layer over the high-k dielectric material, the third layer comprising aluminum oxide; and

a fourth layer over the third layer, the fourth layer comprising titanium and nitrogen.

22. The capacitor construction of claim 21 supported by a semiconductor substrate.

23. The capacitor construction of claim 22 wherein the semiconductor substrate includes a monocrystalline silicon wafer.

24. The capacitor construction of claim 21 wherein the high-k dielectric material is selected from the group consisting of Ta_2O_5, HfO_x, ZrO_y, barium titanate, barium strontium titanate, strontium titanate, and lead zirconate titanate, where x and y are numbers greater than 0.

25. The capacitor construction of claim 21 wherein the first layer is physically against a conductive material, and wherein the first layer and the conductive material are together incorporated into a first electrode of the capacitor construction.

26. The capacitor construction of claim 25 wherein the conductive material is conductively-doped silicon.

27. The capacitor construction of claim 25 wherein the conductive material is conductively-doped rugged silicon.

28. The capacitor construction of claim 21 wherein the first and fourth layers comprise the same composition as one another.

29. The capacitor construction of claim 21 wherein the first layer consists essentially of titanium nitride.

30. The capacitor construction of claim 21 wherein the fourth layer consists essentially of titanium nitride.

31. The capacitor construction of claim 21 wherein the first and fourth layers consist essentially of titanium nitride.

32. The capacitor construction of claim 21 wherein the first layer consists essentially of boron-doped titanium nitride.

33. The capacitor construction of claim 21 wherein the fourth layer consists essentially of boron-doped titanium nitride.

34. The capacitor construction of claim 21 wherein the first and fourth layers consist essentially of boron-doped titanium nitride.

35. A DRAM comprising the capacitor construction of claim 21.

36. An electronic system comprising the DRAM of claim 35.

37. A method of forming a capacitor, comprising:

forming a layer comprising titanium and nitrogen over a substrate, the layer comprising titanium and nitrogen being at least a portion of a first capacitor electrode;

forming a layer comprising aluminum oxide over the layer comprising titanium and nitrogen;

forming a high-k dielectric material over the layer comprising aluminum oxide, the high-k dielectric material comprising a composition other than aluminum oxide; and

forming a second capacitor electrode over the high-k dielectric material.

38. The method of claim 37 wherein the substrate comprises a conductive material; wherein the layer comprising titanium and nitrogen is formed to be physically against the conductive material; and wherein the conductive material and the layer comprising titanium and nitrogen are together incorporated into the first capacitor electrode.

39. The method of claim 38 wherein the conductive material is conductively-doped silicon.

40. The method of claim 38 wherein the conductive material is conductively-doped rugged silicon.

41. The method of claim 37 wherein the layer comprising aluminum oxide is formed by one or both of atomic layer deposition and chemical vapor deposition.

42. The method of claim 37 wherein the high-k dielectric material is selected from the group consisting of Ta_2O_5, HfO_x, ZrO_y, barium titanate, barium strontium titanate, strontium titanate, and lead zirconate titanate, where x and y are numbers greater than 0.

43. The method of claim 37 wherein the layer comprising aluminum oxide is a first layer comprising aluminum oxide, and further comprising forming a second layer comprising aluminum oxide over the high-k dielectric material.

44. The method of claim 43 wherein the layer comprising titanium and nitrogen is a first layer comprising titanium and nitrogen, and further comprising forming a second layer comprising titanium and nitrogen over the second layer comprising aluminum oxide.

45. The method of claim 44 wherein the first and second layers comprising titanium and nitrogen both consist essentially of titanium nitride.

46. The method of claim 44 wherein the first and second layers comprising titanium and nitrogen both consist essentially of boron-doped titanium nitride.